

ENTERED

May 26, 2016

David J. Bradley, Clerk

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISIONLEGACY SEPARATORS LLC, *et al*,

Plaintiffs,

VS.

HALLIBURTON ENERGY SERVICES INC; cp
HALLIBURTON COMPANY, *et al*,

Defendants.

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CIVIL ACTION NO. 4:14-CV-2081

MEMORANDUM ON CLAIM CONSTRUCTION

This case is before the Court for construction of disputed claim terms in United States Patent No. 8,424,597 (“the ’597 Patent¹”). The Court conducted a hearing pursuant to *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 390 (1996) (the “*Markman* Hearing”) on November 17, 2015. Upon review and consideration of the evidence before the Court, the arguments presented by counsel at the *Markman* Hearing, and the controlling legal authority, the Court issues this Memorandum on Claim Construction.

Background

According to Plaintiff, “[t]he ’597 Patent solves a problem commonly seen in oil wells in which the oil does not flow naturally to the surface, but rather, requires assistance (commonly called ‘artificial lift’).” Document No. 131 at 1. “One common form of artificial lift is a downhole submersible pump that pumps production fluid to the surface,” but “[i]f excess natural gas is present in the production fluid, that gas can cripple the pump, either by ‘gas-locking’ it, or by destroying the components of the pump when gas bubbles in the stream collapse during pumping (a phenomenon known as ‘cavitation’).” *Id.* In the past, operators have tried placing gas separators “downhole within the wellbore to remove the gas from the fluid before it enters the pump,” using the separators to “pressurize the fluid stream fed to the pump, which both minimized the size of any gas bubbles and kept a continuous flow of fluid into the

¹ Available at Document No. 132-1.

submersible pump.” *Id.*

The inventor of the ’597 patent, Guy Morrison, improved gas separation “by reducing the pressure of the stream being fed to the pump and giving the gas space to separate more fully from the liquid before entering the pump,” rather than trying to keep the gas compressed in order “to minimize the size of the bubbles and keep the pump being fed fluid.” *Id.* Morrison did this by partially emptying “the downhole separator to provide space for the separation of gas from liquid.” *Id.* Morrison created this space by restricting “the maximum flow rate into the separator to keep it below the flow rate of the pump.” *Id.* at 1-2.

Plaintiff explains that rotary gas separators use centrifugal force to separate gas from liquid in the production fluid. *Id.* at 4. “Paddles [] spin inside a chamber in the gas separator, flinging the heavier liquid away from the center of the separator, while the lighter gas stays near the center.” *Id.* (citing ’597 Patent at 8:43-46, 10:24-30). The gas is “directed away from the submersible pump and out to the wellbore,” while the liquid “continues to flow through the submersible pump.” *Id.* at 5. Historical practice was to keep the separation chamber pressurized and full of liquid, but the ’597 Patent instead creates space in the separation chamber. *Id.* The Patent creates this space by using a flow restrictor to keep “the flow rate of production fluid into the separator less than the flow rate that the submersible pump is pumping out of the separator. Thus, as the submersible pump pumps out more fluid than the restrictor allows into the separation chamber, the separation chamber is kept from filling up with production fluid.” *Id.* (citing ’597 Patent at 2:26-34, 7:11-19). This space allows the liquid and gas to separate, “partially vacating” the chamber. *Id.* (citing ’597 Patent at 2:26-34, 7:11-19).

Legal Standard on Claim Construction

Under *Markman v. Westview Instruments*, it falls to the district court to construe the scope and meaning of the patent claims. 517 U.S. at 390. “It is well-settled that, in interpreting an asserted claim, the court should look first to the intrinsic evidence of record, i.e., the patent itself, including the claims, the specification and, if in evidence, the prosecution history.” *Vitronics Corp. v. Conception, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996) (citing *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 2 / 19

1995) *aff'd*, 517 U.S. 370 (1996)). The words of a claim “are generally given their ordinary and customary meaning.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (*en banc*) (quoting *Vitronics*, 90 F.3d at 1582). The “ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.” *Id.* at 1313. This “person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” *Id.*

For certain claim terms, “the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words.” *Id.* at 1314 (citing *Brown v. 3M*, 265 F.3d 1349, 1352 (Fed. Cir. 2001)). For other claim terms, however, the meaning of the claim language may be less apparent. To construe those terms, the court considers “those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean . . . [including] the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.” *Id.* (citing *InnovalPure Water, Inc. v. Safari Water Filtration Systems, Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004)).

The court may also consider “extrinsic evidence, which ‘consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.’” *Phillips*, 415 F.3d at 1317 (quoting *Markman*, 52 F.3d at 980). Although extrinsic evidence may assist the court in claim construction, it is “less significant than the intrinsic record in determining the legally operative meaning of claim language.” *Id.* (internal quotations and citation omitted). As such, extrinsic evidence should be “considered in the context of the intrinsic evidence.” *Id.* at 1319.

It is also recognized that a patentee is free to be his own lexicographer. *Markman*, 52 F.3d at 979. The caveat is that any special definition given to a word must be clearly defined in the specification. *Id.* (citing *Intelicall, Inc. v. Phonometrics, Inc.*, 952 F.2d 1384, 1388 (Fed. Cir. 1992)). Generally, when the

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specification reveals a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess, then the inventor's lexicography governs. *Phillips*, 415 F.3d at 1316 (citing *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002)).

Legal Standard on Indefiniteness

"[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Nautilus, Inc. v. Biosig Instruments, Inc.*, __ U.S. __, __, 134 S. Ct. 2120, 2124 (2014). "This standard displaced the prior 'insolubly ambiguous' standard applied by the Federal Circuit." *Fairfield Indus., Inc. v. Wireless Seismic, Inc.*, No. 4:14-CV-2972, 2015 WL 1034275, at *4 (S.D. Tex. Mar. 10, 2015) (citing *Nautilus*, 134 S. Ct. at 2124). "The definiteness requirement must take into account the inherent limitations of language, but at the same time, the patent must be precise enough to afford clear notice of what is claimed, thereby apprising the public of what is still open to them. Without such notice, there will remain a 'zone of uncertainty which enterprise and experimentation may enter only at the risk of infringement claims.'" *Id.* (citing *Nautilus*, 134 S. Ct. at 2128-9). "[T]he 'certainty which the law requires in patents is not greater than is reasonable, having regard to their subject-matter.'" *Nautilus*, 134 S. Ct. at 2129 (citing *Minerals Separation, Ltd. v. Hyde*, 242 U.S. 261, 270 (1916)). "A party arguing indefiniteness must prove it by clear and convincing evidence." *Fairfield Indus.*, 2015 WL 1034275, at *4 (citing *Microsoft Corp. v. i4i Ltd. P'ship*, 564 U.S. 91, 131 S. Ct. 2238, 2240 (2011)).

U.S. Patent No. 8,424,597 Claim Terms (Claim Nos.)	Plaintiff's Proposed Construction	Defendants' Proposed Construction	Court's Construction
partially vacate (1)	Not liquid-full, e.g., a dynamic low liquid level that provides space for gas and liquid separation	Indefinite	A dynamic low liquid level that provides space for gas and liquid separation
predetermined flow rate (2, 9)	No construction necessary/plain and ordinary meaning In the alternative: selected flow rate	A flow rate determined prior to initiating the claimed method that equals the actual flow rate entering the separation chamber during operation	A flow rate determined prior to initiating the claimed method that approximates the actual flow rate entering the separation chamber, while space is being created in the chamber
Predetermine(d) ² amount (4, 11)	No construction necessary/plain and ordinary meaning In the alternative: selected amount	A known amount determined prior to the initiation of the claimed method that equals the actual amount of gas and liquid entering the separation chamber during operation	The selected difference between the approximate flow rate through the restrictor and the pumping rate of the submersible pump, while space is being created in the chamber
at a rate to at least partially vacate (1)	No construction necessary/plain and ordinary meaning In the alternative: At a pumping rate of the submersible pump that partially vacates	Indefinite	No construction necessary/plain and ordinary meaning
At a rate to maintain a less than full liquid level in the separation chamber (8, 22)	No construction is required. In the alternative: At a rate to maintain partial vacation in the separation chamber	Indefinite	No construction necessary/plain and ordinary meaning
sufficiently vacated (14)	No construction necessary/plain and ordinary meaning In the alternative: not	Indefinite	No construction necessary/plain and ordinary meaning

² It is not clear why the Patent refers to a predetermine amount, rather than a predetermined amount. For the sake of consistency, the Court will refer to "predetermine amount."

	liquid-full, e.g., a dynamic low liquid level that provides space for gas and liquid separation		
substantially separated (3, 10, 16)	No construction necessary/plain and ordinary meaning	Indefinite	No construction necessary/plain and ordinary meaning
substantially moved (3, 10, 16)	No construction necessary/plain and ordinary meaning	Indefinite	No construction necessary/plain and ordinary meaning
substantially separate(d) (8, 22)	No construction necessary/plain and ordinary meaning	Indefinite	No construction necessary/plain and ordinary meaning

Discussion

Partially vacate (1)

Plaintiff argues that “[t]he ’597 Patent expressly defines partially vacate: ‘partially vacate is meant to convey that the separation chamber will have a dynamic low liquid level maintained therein during proper operation, and space is thereby provided for gas and liquid separation.’” Document No. 131 at 13 (citing ’597 Patent at 5:56-60). Defendant argues that the term is indefinite, because the patentee “does not provide an objective way of determining what is required to meet the ‘partially vacate’ limitation in the same way that *Fairfield* and *Interval Licensing LLC v. AOL, Inc.* failed to specify the amount of interference reduction required or the percentage of screen space an image can occupy before becoming intrusive.” Document No. 141 at 24 (citing 2015 WL 1034275, at *4; 766 F.3d 1364, 1373 (Fed. Cir. 2014)).

“Claim language employing terms of degree has long been found definite where it provided enough certainty to one of skill in the art when read in the context of the invention.” *Interval*, 766 F.3d at 1370. *See also Affymetrix, Inc. v. Hyseq, Inc.*, 132 F. Supp. 2d 1212, 1229 (N.D. Cal. 2001) (“It is well settled law that terms of degree such as [] ‘partially’ and ‘substantially’ do not automatically brand a claim indefinite.”). The definition in the Patent explains that “partially vacate is meant to convey that the

separation chamber will have a dynamic³ low liquid level maintained therein during proper operation, and space is thereby provided for gas and liquid separation.” ’597 Patent at 5:56-60. The purpose of the Patent is to increase the amount of separation between the gas and liquid, therefore “[o]ne of ordinary skill in light of the specification would understand that the meaning of ‘partially vacate’ is to allow ‘sufficient space . . . for the gas to separate from the liquid.’” Document No. 132-7, Wooley Report, at 3 (citing ’597 Patent at 2:18, 3:30, 5:59, 14:50). In other words, the liquid level needs to be low enough to allow for separation of the gas and liquid. *See ZMI Corp. v. Cardiac Resuscitator Corp.*, No. CIV. 85-910-FR, 1987 WL 16165, at *5 (D. Or. Feb. 24, 1987) *judgment rev’d in part, vacated in part on other grounds*, 844 F.2d 1576 (Fed. Cir. 1988) and *aff’d*, 899 F.2d 1228 (Fed. Cir. 1990) (The district court found that one of skill in the art would understand that “low current density” referred to density “low enough to make the device tolerable to the general population,” where pain reduction was a key purpose of the patented device.) Furthermore, “the patent and prosecution history explain how to partially vacate the separation chamber, viz., ‘[t]he capacity of the back pressure device . . . is selected . . . to assure that the separation chambers will not fill’” Document No. 131 at 14 (citing ’597 Patent at 9:15-36; Document No. 132-6, ’597 File History at LS000208). The Patent also provides an example of how to achieve partial vacation, which would provide further guidance to one skilled in the art. ’597 Patent at 9:15-36. *See DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1260 (Fed. Cir. 2014) (“For other [non-subjective] terms like, for example, terms of degree, specific and unequivocal examples may be sufficient to provide a skilled artisan with clear notice of what is claimed.”).

³ Defendant also argues that “Legacy’s proposed construction defines an indefinite term by reference to an equally indefinite description,” because “the term ‘dynamic’ indicates that the liquid level can and will change.” Document No. 141 at 24 (citing Document No. 151, Ex. H, Stevick Decl. at ¶ 27). Defendant cites *Fairfield* for the proposition that a party cannot substitute one ambiguous term for another. *Id.* (citing *Fairfield Indus., Inc. v. Wireless Seismic, Inc.*, No. 4:14-CV-2972, 2015 WL 1034275, at *35, 38 (S.D. Tex. Mar. 10, 2015)). However, the use of the word “dynamic” is necessary, because the liquid level in the separation chamber is not static. *Fairfield*, 2015 WL 1034275, at *16 (suggesting that imprecision in a patent may be permissible when naturally occurring or acknowledging a physical impossibility). *See also Shatterproof Glass Corp. v. Libbey-Owens Ford Co.*, 758 F.2d 613, 624 (Fed. Cir. 1985) (“[I]f the language is as precise as the subject matter permits, the courts can demand no more.”).

Interval and *Fairfield* do not support Defendant's position. *Interval* is inapposite, because the phrase "unobtrusive manner" is "highly subjective." 766 F.3d at 1371. "[W]hether something distracts a user from his primary interaction depends on the preferences of the particular user and the circumstances under which any single user interacts with the display." *Id.* In comparison, the phrase "partially vacate" does not depend solely "on the unrestrained, subjective opinion of a particular individual purportedly practicing the invention." *DDR Holdings*, 773 F.3d at 1260. Reasonable people could not disagree as to whether the chamber is "partially vacated." Furthermore, in *Interval*, the Court explained that a narrow example in the specification did not "provide a reasonably clear and exclusive definition." 766 F.3d at 1373. However, if the example had been cast as a definition (as in this case), then it would have helped "provide the clarity that the specification lacks." *Id.* See also *Vitronics*, 90 F.3d at 1582 ("The specification acts as a dictionary when it expressly defines terms used in the claims.") (citation omitted).

In *Fairfield*, the Court found that "the term 'substantially prevent communication interference between the first and second pairs,' when read in light of the specification and the prosecution history, fails to inform with reasonable certainty those skilled in the art about the degree of interference to be prevented." 2015 WL 1034275, at *16. Without this information, "future inventors are forced to speculate about where the threshold is, and whether their inventions infringe because they allow for some communication interference." *Id.* at 15. However, as described above, "the intrinsic evidence here provides 'a general guideline and examples sufficient to enable a person of ordinary skill in the art to determine [the scope of the claims].'" *Enzo Biochem, Inc. v. Applera Corp.*, 599 F.3d 1325, 1335 (Fed. Cir. 2010) (citation omitted). The examples and guidance provided are key, because they demonstrate to one skilled in the art how to "partially vacate" the separation chamber, in order to facilitate separation between the liquid and the gas. In contrast, the patent in *Fairfield* did not provide any guidance

as to how much interference was prevented.⁴

As described above, “the patent and prosecution history explain how to partially vacate the separation chamber, viz., ‘[t]he capacity of the back pressure device ... is selected ... to assure that the separation chambers will not fill’” Document No. 131 at 14 (citing ’597 Patent at 9:15-36; Document No. 132-6, ’597 File History at LS000208). However, Defendant states that Plaintiff cannot argue that examples of the method demonstrate its definiteness, while also alleging trade secret claims that include “equipment configuration and the optimum restrictor size.” Document No. 141 at 25 (citing Document No. 141, Ex. A). Therefore, Defendant states that, “[b]y making these trade secret claims, Legacy necessarily concedes that ‘equipment configurations that could be used to achieve downhole separation of oil and gas, without duplicating the configurations disclosed as claimed in U.S. Patent 6,761,215’ are not disclosed in the ’597 Patent.” *Id.* (citing Document No. 141, Ex. G). However, the ’597 Patent teaches “the relationship between the sizing of the capacities of the back pressure device and submersible pump,” including a specific example of sizing, while the trade secrets “relate to optimizing the particular sizes based on individual well characteristics—subject matter neither taught by the ’597 Patent nor needed to practice its claims.” Document No. 145 at 5 n.4; ’597 Patent at 9:24-36.

The law allows inventors to keep in confidence “[i]mplementation details and techniques that go beyond information disclosed in a patent,” provided that “the information which is withheld from the public is not essential for the practice of a patented invention.” 1 Pat. L. Fundamentals § 4:25 (2d ed.) (citing *Ocean Science & Engineering, Inc. v. U.S.*, 194 U.S.P.Q. (BNA) 380, 389, 1977 WL 22792 (Ct. Cl. Trial Div. 1977); *Curvcraft, Inc. v. Chromcraft, Inc.*,

⁴ Plaintiff also mentions various additional constructions proffered by Fairfield, the amount of which “tended to support a finding of indefiniteness.” Document No. 145 at 4 n.2. The Court agrees that this contrasts with Legacy’s consistent definition of “partially vacate.”

193 U.S.P.Q. (BNA) 371, 372, 1976 WL 21059 (E.D. Pa. 1976)). As described above, the trade secrets in this case are used to *optimize* separation, but are not *required* to practice the '597 Patent claims. Therefore Defendant's argument that "Legacy cannot define its invention as patented in one instance and trade secret in another," does not apply, because the trade secrets claimed by Plaintiff are not required to practice the invention. Document No. 141 at 26. Furthermore, as explained above, one skilled in the art would be reasonably certain of the term "partially vacate," without specific details of equipment configuration and sizing. "Partially vacate" is not indefinite, and will be construed as defined in the specification.

Predetermined flow rate (2, 9)

Plaintiff states that the "'predetermined flow rate' is the selected flow rate capacity of the flow restrictor that limits the flow into the separation chamber to less than the capacity of the submersible pump." Document No. 131 at 15. Plaintiff does not believe that this term needs to be construed, but offers "selected flow rate" as an alternate construction.⁵ *Id.* The Patent explains that "[t]he rate of fluid flow to the separation chamber is selectively determined in relation to the liquid pumping rate of the submersible pump [] to admit less liquid to the separation chamber than the liquid pumping rate of the downhole submersible pump," thereby creating the space in the separation chamber. *Id.* at 16 (citing '597 Patent at 3:49-53). Once the space has been created, "the flow into the separator will equal the flow out," so that the separation chamber remains partially vacated. Document No. 145 at 15 (citing '597 Patent at 13:53-58).

Plaintiff explains that "[t]he parties agree that the 'predetermined flow rate' is 'selected' or 'determined' and that the sizing of restrictor to that flow rate is done before the method is performed." Document No. 131 at 16. However, "[t]he dispute is whether that sizing that

⁵ Plaintiff's claim that no construction is needed is belied by their claim that the "predetermined flow rate" is the "selected flow rate capacity." Document No. 131 at 15. Plaintiff cannot conflate rate and capacity here, while simultaneously arguing that no construction is needed.

restricts the flow must be less than the capacity of the submersible pump, as Legacy contends, or ‘equal the actual flow rate,’ as Halliburton contends.” *Id.* Plaintiff contends that the specification explains that the flow capacity is what is selected, so that “the flow rate of the liquid passing to the inlet port of the submersible pump is less than the capacity of the submersible pump.” *Id.* (citing ’597 Patent at 7:11-14). Defendant’s construction is inconsistent with the specification, which refers to the “capacity” of the flow restrictor several times, but never once uses the words “equal” or “actual.” *Id.* at 17.

Defendant states that “predetermined flow rate” should be construed as “[a] flow rate determined prior to initiating the claimed method that equals the actual flow rate entering the separation chamber during operation.” Document No. 141 at 31. This more specific definition is required, because “the actual flow rates and the conditions seen in operation are critical to actually practicing the patented methods.” *Id.* at 32. In support of this argument, Defendant cites other sections of the Patent which contemplate “actual pumping conditions,” demonstrating that “there is much more to the predetermined flow rate than merely the capacity of the flow restrictor.” *Id.* at 33-34. In addition, Defendant argues that Plaintiff’s description “conflates capacity with actual flow rate,” and that “[t]he flow rate capacity is simply the maximum flow rate that can pass through the flow restrictor, while the actual flow rate entering the separation chamber may be a quantity less than or up to that amount.” *Id.* at 34. As Plaintiff did not “draft all of its claims in terms of ‘flow capacity;’ it cannot now [] add this limitation to claims 2 and 9.” *Id.* at 36. Defendant cites claims 4, 11 and 17 to show that Plaintiff knew how to refer to “flow capacity,” and therefore could have done so with claims 2 and 9. *Id.* (citing *Acumed LLC v. Stryker Corporation*, 483 F.3d 800, 807 (Fed. Cir. 2007)).

“Although words in a claim are generally given their ordinary and customary meaning, a

patentee may choose to be his own lexicographer and use terms in a manner other than their ordinary meaning, as long as the special definition of the term is clearly stated in the Patent specification or file history.” *Vitronics*, 90 F.3d at 1582. There is no argument here that Plaintiff has given the term “flow rate” an alternative definition in the Patent. Plaintiff states that the Patent explains that the selected capacity determines the flow rate, but nowhere does it suggest that the two are synonymous. Document No. 145 at 13. Therefore, Plaintiff cannot now attempt to construe the “flow rate” as the “flow rate capacity,” where the flow rate capacity and the actual flow rate can be different.

However, the Court understands that construing the “predetermined flow rate” as the “actual flow rate entering the separation chamber during operation” as desired by Defendant, is also not appropriate, because the flow rate is not constant during operation. “[T]he submersible pump will pump fluid out faster than the back pressure device will allow new fluid in, vacating the separator and creating space. After that space has been created, the flow into the separator will equal the flow out, and the separator will remain partially vacated.” Document No. 145 at 15 (citing ’597 Patent at 4:44-48, 13:53-58). Therefore any reference to the actual rate would need to clarify the time when measuring the rate: either while the space is being created, or once the rates equalize. Furthermore, the Court understands that “[i]n an oil and gas well it is impossible to precisely determine the actual flow rate.” Document No. 132-7 at 4. Plaintiff’s expert explains that “one of ordinary skill would understand that a predetermined flow rate of 1500 BPD would be a reasonable prediction of an actual flow rate of 15[0]0 BPD, but of course the two would not be ‘equal.’” *Id.* Therefore the Court will construe “predetermined flow rate” as “a flow rate determined prior to initiating the claimed method that approximates the actual flow rate entering the separation chamber, while space is being created in the chamber.”

Predetermine amount (4, 11)

The dispute between Plaintiff and Defendant for this term is very similar to their dispute over the “predetermined flow rate.” Plaintiff states that the “predetermine amount” does not require construction, but suggests the alternative of “selected amount.” Document No. 131 at 18. The “predetermine amount” is the “selected difference between the capacity of the submersible pump and the capacity of the restrictor that limits the flow into the separation chamber.” *Id.* Defendant argues that the term refers to the “difference between the pump rate and the flow rate seen in operation,” suggesting the term be construed as “[a] known amount determined prior to the initiation of the claimed method that equals the difference between the pumping rate of the submersible pump and the actual amount of gas and liquid entering the separation chamber during operation.” Document No. 141 at 37.

Although Plaintiff states that the “predetermine amount” is “the selected difference between the capacity of the submersible pump and the capacity of the restrictor that limits the flow into the separation chamber,” the Patent states otherwise. Document No. 131 at 18. The Patent does not refer to the amount as a difference in the capacity, but refers to a difference in the flow rates. ’597 Patent at 15:8-12, 16:23-27. As above, *capacity* and *rate* are not the same. Defendant’s construction again encounters the problems described above: the rate cannot be precisely predicted or determined. Therefore, “[a] known amount determined prior to the initiation of the claimed method that equals the difference between the pumping rate of the submersible pump and the actual amount of gas and liquid entering the separation chamber during operation” is an inappropriate construction. The Court will construe the term as “the selected difference between the approximate flow rate through the restrictor and the pumping rate of the submersible pump, while space is being created in the chamber.”

At a rate to at least partially vacate (1) and at a rate to maintain a less than full liquid level in the separation chamber (8, 22)

Plaintiff states that neither term needs to be construed, because the Patent “explains that having a less-than-full or partially vacated separation chamber is achieved by restricting the flow into the separation chamber to less than the flow rate of the submersible pump.” Document No. 131 at 22 (citing ’597 Patent at 2:15-22, 3:49-58). The Patent uses the terms “partially vacated” and “not liquid full” or “less than full” interchangeably; therefore “one of ordinary skill would understand that a less than full liquid level and a partially vacated separator have similar meanings and have reasonably certain claim scope.” *Id.* Furthermore, “the patent provides the functional explanation of how to achieve those results, and thus a reasonable basis for a person of skill in the art to understand the claim boundaries.” *Id.* (citing *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1382-3 (Fed. Cir.) *cert. denied*, 136 S. Ct. 569 (2015) (hereinafter “*Nautilus III*”)).

In response, Defendant argues that Plaintiff cannot assert that “partially vacate” requires construction, but also assert that “at a rate to at least partially vacate” does not. Document No. 141 at 29. Furthermore, Defendant makes the same argument as above: that the phrase fails to explain “[b]y how much or to what degree must the separation chamber be less than full.” *Id.* at 30 (citing Document No. 151, Ex. H, at ¶ 48). The phrase “partially vacate” is within the phrase “at a rate to at least partially vacate,” which is at issue here. As described above, this term is not indefinite. “Partially vacate” should be construed in accordance with its definition in the specification. The phrase “a less than full liquid level” is used synonymously with “partially

vacate,” and therefore can be construed in the same way.⁶ *Tate Access Floors, Inc. v. Maxcess Techs., Inc.*, 222 F.3d 958, 968 (Fed. Cir. 2000) (“We agree with Maxcess [creator of the infringing product] that the term ‘inner layer’ in claim 8 should be construed in the same manner as the ‘inner body portion’ in claim 1 because they are used interchangeably in the specification.”). *See also Pickholtz v. Rainbow Techs., Inc.*, 284 F.3d 1365, 1373 (Fed. Cir. 2002) (construing “computer” and “computer system” the same way, where the patent used the terms as synonyms).

Lastly, Defendant also argues that the “rate” in both terms is not specified, leaving one skilled in the art to question “what rate would effectuate ‘a less than full liquid level’ or ‘at least partial vacation.’” *Id.* (citing Document No. 151, Ex. H, at ¶¶ 41, 49). However, the Court agrees with Plaintiff that the specification explains how “to partially vacate or maintain a less than full separator” by using a predetermined flow rate into the chamber, which is less than the pumping rate out of the chamber. Document No. 145 at 10 (citing ’597 Patent at 4:41-44, 3:59-62, 6:1-6, 7:11-14). The specification also provides examples of possible rates created by the selection of the flow restrictor capacity. *Id.* Therefore the “rate” referred to is not indefinite.

Sufficiently vacated (14)

Plaintiff states that “sufficiently vacated” does not require construction,⁷ because it “is defined within the context of the claim language, in which ‘the separation chamber [is]

⁶ More specifically, “partially vacate” in claim 1 refers to the creation of space, whereas claims 8 and 22 refer to maintaining the space. ’597 Patent at 14:49-50, 15:62-64, 18:43-44. Regardless, though, the terms are referring to the same space.

⁷ Alternatively, Plaintiff suggests “not liquid-full, e.g., a dynamic low liquid level that provides space for gas and liquid separation.” Document No. 131 at 19 (citing ’597 Patent at 5:56-60). Defendant objects to this because it is the same as Plaintiff’s construction for the term “partially vacate” and “[t]here is presumed to be a difference in meaning and scope when different words or phrases are used in separate claims.” Document No. 141 at 28 (citing *Comack Commc’ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998)). However, as the alternative construction is not required, these arguments are not relevant. *See also Pickholtz v. Rainbow Techs., Inc.*, 284 F.3d 1365, 1373 (Fed. Cir. 2002); *Tate Access Floors, Inc. v. Maxcess Techs., Inc.*, 222 F.3d 958, 968 (Fed. Cir. 2000).

sufficiently vacated by the submersible pump to provide space to effect substantial gas separation from the liquid.” Document No. 131 at 19 (citing ’597 Patent at 16:64). “The Patent shows that sufficiently vacating the separation chamber is providing space for the separation, by limiting the flow rate into the separation chamber to less than the flow rate of the submersible pump.” *Id.* at 20 (citing ’597 Patent at 4:41-44). Therefore, “[o]ne of skill in the art would be able to understand the scope of sufficiently vacated as used in the claims.” *Id.* (citing *Nautilus III*, 783 F.3d at 1383-84 (finding claim term definite by using context of the claims and functional explanation of practicing the patent)). Defendant argues that this term is indefinite, as it is unclear “how much or to what degree must the separation chamber be vacated to be sufficiently vacated.” Document No. 141 at 28 (citing Document No. 151, Ex. H, at ¶ 34). However, the Court agrees with Plaintiff, as described more fully in the section above regarding the term “partially vacate.” “Sufficiently vacated” does not require construction, nor is the term indefinite.

Substantially separated (3, 10, 16), Substantially moved (3, 10, 16) and Substantially separate (8, 22)

Plaintiff states that “‘substantially separated’ (and ‘substantially separate’) and ‘substantially moved’ are used together in the claims to explain how the gas and liquid are separated from each other and directed through the gas and liquid ports on the ‘head.’” Document No. 131 at 20. “The claims explain that ‘the liquid is substantially moved to the periphery of the separation chamber’ and the ‘substantially separated’ liquid passes ‘through a liquid outlet port’ while the gas ‘passes near the axial center of the separation chamber’ and is ‘substantially separated ... to pass through a gas outlet port.’” *Id.* at 20-21 (citing E.g. ’597 Patent at 14:60). Plaintiff explains that this separation (“moving the liquid to the periphery and

the gas to the center to go through their respective ports”) is “well understood by those of ordinary skill in the art, because this is how all rotary gas separators work.” *Id.* at 21 (citing Document No. 132-7 at 12).

Defendant argues that “the very definition of the word ‘substantially,’ ‘large in amount, size or number,’ demonstrates that these are terms of degree subject to an indefiniteness inquiry.” Document No. 141 at 17-18 (citing Document No. 151, Ex. H, at ¶¶ 54, 60). Terms of degree are indefinite unless “the claims, when read in light of the specification and the prosecution history, [] provide objective boundaries for those of skill in the art.” *Id.* at 18 (citing *Interval Licensing*, 766 F.3d at 1371). In applying this test, Courts have noted that “[i]t is clear that the use of the word ‘substantially’ does not necessarily make a claim term indefinite.” *Fairfield Indus.*, 2015 WL 1034275, at *14 (citing *Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349, 1359 (Fed. Cir. 2012) (“This court has repeatedly confirmed that relative terms such as ‘substantially’ do not render patent claims so unclear as to prevent a person of skill in the art from ascertaining the scope of the claim.”)). “It is also well accepted that patentable inventions cannot always be described in terms of exact measurements,” because of the inherent imprecision of language. *Id.* (citing *Thomas Swan & Co. Ltd. v. Finisar Corp.*, No. 2:13-CV-178-JRG, 2014 WL 2885296, *25 (E.D. Tex. June 25, 2014)). Therefore, words like “substantially” may be necessary, as long as the patent’s specification “provides a standard for measuring that degree.” *Id.* (citations omitted).

In examining the use of the word “substantially,” Plaintiff’s expert explains that complete (100%) separation of gas from oil is not possible, but that “the closer one can get to 100% separation the better an ESP [electric submersible pump] will perform.” Document No. 132-7 at 12. This is very similar to the plaintiff’s argument in *Fairfield* that the use of the term

substantially in its patent was “simply to acknowledge the reality that wireless systems can never be free from all [external] interference.” 2015 WL 1034275, at *15. The plaintiff noted that “courts have found that ‘substantially’ is not indefinite where it is used to account for natural limitations.” *Id.* (citing *Ruckus Wireless, Inc. v. Netgear, Inc.*, No. C–08–2310 PJH, 2013 WL 6627737, *4 (N.D.Cal. Dec.16, 2013) (holding that the term “substantially omnidirectional” was not indefinite because “real antennas are never perfectly omnidirectional, as the physical structure of the antenna itself creates some minor interference that prevents a perfectly circular radiation pattern”)). The Court discounted this argument, finding that the relevant claims were indefinite,⁸ because the relevant phrase was referring to prevention of internal interference, which could be entirely prevented (as opposed to external interference, which cannot be entirely prevented). *Id.*

In this case, however, 100% separation is not possible. Therefore the argument in *Fairfield* applies, because the use of the word substantially describes a physical limitation. *See also Shatterproof Glass Corp. v. Libbey-Owens Ford Co.*, 758 F.2d 613, 624 (Fed. Cir. 1985) (“[I]f the language is as precise as the subject matter permits, the courts can demand no more.”) (citation omitted). Furthermore, the use of the word “substantially” is appropriate, because, as much separation as possible is beneficial, but as a pump approaches 100% separation, there is a point of diminishing returns. Document No. 132-7 at 12. One of skill in the art would be aware of this fact, and would understand that the use of the word “substantially” means as much separation as possible “to obtain good performance and life from the ESP.” *Id.* at 13. Similarly, one of skill in the art would understand that the liquid’s “substantial” movement “refers to displacing nearly all of the liquid ‘to the periphery of the separation chamber.’” *Id.* Therefore

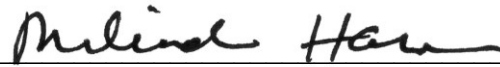
⁸ Plaintiff notes that this is the exception, not the rule: “in 11 cases applying *Nautilus* to the term ‘substantially,’ only one found a claim indefinite—the *Fairfield* case relied upon so heavily by Halliburton.” Document No. 145 at 7; Document No. 145-1.

these terms are not indefinite.

Conclusion

The Court hereby construes the disputed terms as described above.

SIGNED at Houston, Texas, this 26th day of May, 2016.

A handwritten signature in black ink, appearing to read "Melinda Harmon", is written over a horizontal line.

MELINDA HARMON
UNITED STATES DISTRICT JUDGE